UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,326	06/01/2001	Kenneth Lerman	SYCS-038/P89	2897

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EXAMINER
TANG, KENNETH

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/872,326	LERMAN, KENNETH
	Examiner	Art Unit
	Kenneth Tang	2127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some *　c)☐ None of:

　　　　1.☐ Certified copies of the priority documents have been received.

　　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-32 are presented for examination.

Drawings

2.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "management facility" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

     a.   The following terms are indefinite:

        i.   In claim 1:

(1)   "plurality of second data structures" (line 7) is indefinite because it is not understood how it is possible to have a plurality of second data structures. It is grammatically incorrect and it is confused if it is meant to be a plurality of a second type of data structure.

(2)   "third structures" (line 8) is indefinite because it is not made explicitly clear in the claim language whether this refers to a data structure or not.

(3)   "a third structure" (line 11) is indefinite because it is not made explicitly clear in the claim language whether this refers to the third structure of line 8 or if a new third structure is being introduced. In addition, it is not clear whether this is a data structure or not.

(4)   "selected one of said second data structures" is indefinite because it is not made explicitly clear in the claim language where this is coming from. Specifically, it is unclear who or what does this selection.

        (5)   "current time" is indefinite because it is not made explicitly clear in the claim language what the current time is of.

ii.   Claims 14, 23, and 29 are rejected for the same indefinite reasons as stated in the rejection of claim 1.

iii.   In claim 14, "providing a plurality of linked lists referenced by said memory locations" (line 29) is also indefinite because it is not made explicitly clear in the claim language which memory locations of the array does referencing occur and whether or not if there is a linked list for each memory location.

iv.   In claim 14, "a node" (line 32) is also indefinite because it is not made explicitly clear in the claim language if this is the same node as in line 30 or if a new node is being introduced.

v.   In claim 29, "switching apparatus" (lines 2 and 7) is indefinite because the switching apparatus does not indicate any act of switching in the claim language.

b.   Claims 1 and 23 recite the limitation "said data structure" in lines 5 and 34, respectively. There is insufficient antecedent basis for this limitation in the claim.

4.   Claims 1-13 and 29-32 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

c.   The omitted structural cooperative relationships are:

> vi.   In claim 1, there is no relationship established between the list (line 3) to anything (first data structure, second data structure, third structure, etc.);
>
> vii.   In claim 29, there is no relationship between the processor (line 3) to anything(processor, event list, first data structure, second data structure, third structure, management facility, etc.);

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Background Information of the Specification) (hereinafter AAPA) in view of Pineau (US 2002/0184318 A1).

6.   As to claim 1, AAPA teaches in an electronic device, a method for maintaining a timed-event list of operations to be performed by said electronic device *(page 1, line 28)*, said method, comprising the steps of:

providing a first data structure occurring in said electronic device at any one time *(page 1, lines 32-33)*,

providing a plurality of second data structures referenced by said first data structure, said second data structures holding third structures, each said third structure encapsulating data about a timed event, said timed events to be performed by said electronic device *(page 1, lines 28-31)*,

inserting a third structure into a selected one of said second data structures referenced by said first data structure, said selected one of said second data structures selected based on the time for execution of a timed event encapsulated by said third structure and a current time *(page 2, lines 13-27)*.

7.   AAPA teaches a new node that is selected (during the sorting) before being inserted into a linked list by event execution time and checking the execution time of the event in each node against the current time *(page 2, lines 22-27)* but fails to explicitly teach that the selection is also based on size. However, Pineau teaches selecting from a list of data objects based on the smaller size *(page 2, [0016])*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of selection of a list based on size to the existing system because processing a smaller size data object would increase the speed of processing *(page 3, [0033])*. AAPA also fails to explicitly teach that the memory locations numbering is more than the expected number of events. However, it would be obvious to one of ordinary skill in the art that the memory locations numbering is more than the expected number of events so that it can be insured that there will be enough memory locations to hold the event information.

8.   As to claim 2, AAPA teaches serially traversing said first data structure at periodic timed intervals *(page 2, lines 22-31)*.

9.   As to claim 3, AAPA teaches serially traversing a second data structure referenced by said first data structure in the time period between said periodic timed intervals; and inspecting a third structure held by said second data structure *(page 2, lines 13-31)*.

10.   As to claim 4, AAPA teaches retrieving said inspected. third structure from said second data structure: and executing a timed event encapsulated by said third structure *(page 2, lines 13-31)*.

11.   As to claim 5, AAPA teaches removing said inspected third structure from said second data structure; and inserting said inspected third structure into a different second data structure referenced by said first data structure based on the time for execution of a timed event encapsulated by said third structure, the size of said first data structure and a current time *(page 2, lines 13-31)*.

12.   As to claim 6, AAPA teaches retrieving said inspected third structure from said second data structure; and executing a tuned event encapsulated by said third structure *(page 2, lines 13-31)*.

13.   As to claim 7, AAPA teaches wherein said first data structure is an array *(page 1, line 33)*.

14.   As to claim 8, AAPA teaches wherein said plurality of said second data structures are

linked lists *(page 1, lines 28-33).*

15.   As to claim 9, AAPA teaches wherein said plurality of said second data structure are

doubly-linked lists *(page 1, lines 32-33).*

16.   As to claim 10, AAPA teaches wherein said third structure encapsulates data about a

timed event that is part of a computer simulation *(page 1, lines 25-26 and page 2, lines 13-31).*

17.   As to claim 11, AAPA teaches wherein said electronic device is a real-time computer

system *(page 1, lines 25-26 and page 2, lines 13-31).*

18.   As to claim 12, AAPA fails to explicitly teach a switching apparatus within a network.

Pineau teaches using switched networks to transfer smaller sized data objects. It would have

been obvious to one of ordinary skill in the art at the time the invention was made to include the

feature of a switched network to the existing system in order to increase and expand

communication abilities *(see Abstract and page 1, [0006]).*

19.   As to claim 13, AAPA teaches selecting the insertion point of said third structure but fails

to explicitly teach that this is done with a hashing algorithm. However, it is well known and

common in the art that hashing algorithms can be used to access data. It would have been

obvious to one of ordinary skill in the art at the time the invention was made to include the

feature of hashing because it provides a common method of data accessing that allows for

functions such as selecting an insertion point of a data structure to occur.

20.   As to claim 14, AAPA teaches . In a computer system, a method for maintaining a

timed-event list *(page 1, line 28)*, said method, comprising the steps of:

providing an array of memory locations occurring in said computer system at any one

time *(page 1, lines 32-33)*,

providing a plurality of linked lists referenced by said memory locations in said array,

said linked lists including nodes, each said node encapsulating data about a timed event to be

performed by said computer system *(page 1, lines 28-31)*;

inserting a node into a selected (then sorted) one of said linked lists referenced by said

memory locations in said array, said selected one of said linked lists selected based on the time

for execution of a timed event encapsulated in said node, and a current time *(page 2, lines 13-

27)*.

21.   AAPA teaches a new node that is selected (during the sorting) before being inserted into

a linked list by event execution time and checking the execution time of the event in each node

against the current time *(page 2, lines 22-27)* but fails to explicitly teach that the selection is also

based on size. However, Pineau teaches selecting from a list of data objects based on the smaller

size *(page 2, [0016])*. It would have been obvious to one of ordinary skill in the art at the time

the invention was made to include the feature of selection of a list based on size to the existing

system because processing a smaller size data object would increase the speed of processing

(page 3, [0033]). AAPA also fails to explicitly teach that the memory locations numbering is

more than the expected number of events. However, it would be obvious to one of ordinary skill

in the art that the memory locations numbering is more than the expected number of events so

that it can be insured that there will be enough memory locations to hold the event information.

22.   As to claim 15, it is rejected for the same reasons as stated in the rejection of claim 9.

23.   As to claim 16, it is rejected for the same reasons as stated in the rejection of claim 2.

24.   As to claim 17, it is rejected for the same reasons as stated in the rejection of claim 3.

25.   As to claim 18, it is rejected for the same reasons as stated in the rejection of claim 4.

26.   As to claim 19, it is rejected for the same reasons as stated in the rejection of claim 5.

27.   As to claim 20, it is rejected for the same reasons as stated in the rejection of claim 6.

28.   As to claim 21, it is rejected for the same reasons as stated in the rejection of claim 11.

29.   As to claim 22, it is rejected for the same reasons as stated in the rejection of claim 10.

30.   As to claim 23, it is rejected for the same reasons as stated in the rejection of claim 1.

31. As to claim 24, it is rejected for the same reasons as stated in the rejection of claim 2.

32. As to claim 25, it is rejected for the same reasons as stated in the rejection of claim 3.

33. As to claim 26, it is rejected for the same reasons as stated in the rejection of claim 4.

34. As to claim 27, it is rejected for the same reasons as stated in the rejection of claim 5.

35. As to claim 28, it is rejected for the same reasons as stated in the rejection of claim 6.

36. As to claim 29, it is rejected for the same reasons as stated in the rejection of claims 1 and 14. However, AAPA fails to explicitly teach a switching apparatus within a network. Pineau teaches using switched networks to transfer smaller sized data objects. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of a switched network to the existing system in order to increase and expand communication abilities *(see Abstract and page 1, [0006])*.

37. As to claim 30, it is rejected for the same reasons as stated in the rejection of claim 7.

38. As to claim 31, it is rejected for the same reasons as stated in the rejection of claim 8.

39. As to claim 32, it is rejected for the same reasons as stated in the rejection of claim 9.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
9/15/04

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